2.2 Government intervention in markets

Name: _____ Class: _____ Date: _____ **Total: 30 marks**

KEY WORDS maximum price • government failure

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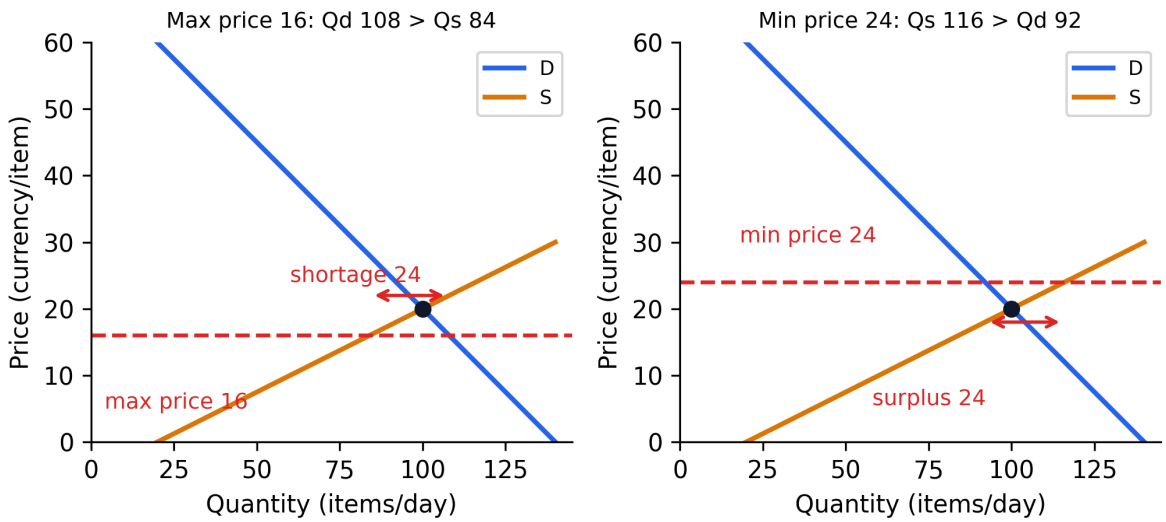
Objective

Apply the eight methods of intervention with their purpose, compute the effects of price controls, Pigouvian taxes, subsidies and permits on the shared model, and evaluate interventions for government failure (spec 1.3.6, rows 1–2).

1 Key knowledge and worked examples

Intervention arithmetic. On the shared model (market $(100, 20)$): a maximum price of 16 gives $Q_d = 108 > Q_s = 84$, a shortage of 24; a minimum price of 24 gives $Q_s = 116 > Q_d = 92$, a surplus of 24; a Pigouvian tax of 6 (the external cost) moves the market to the social optimum $(92, 24)$; a subsidy of 6 corrects a positive externality to $(108, 16)$ at a cost of $6 \times 108 = 648$ per day; a permit cap of 84 meets demand at a permit price of 28. Every intervention answer ends by weighing the correction against government failure.



Original model; the shortage and surplus of 24 are computed in the worked examples.

2 Practice

2.1 State the purpose of government intervention and name any five of the eight methods. [3]

2.2 A maximum price of 16 is set on this market. Calculate the shortage and describe two consequences. [3]

2.3 A minimum price of 24 is guaranteed to producers. Calculate the surplus and state one way the government might handle it. [3]

2.4 The marginal external cost of production is 6. State the Pigouvian tax that internalises it and the resulting quantity. [2]

2.5 In a permit system with a cap of 84, explain what fixes the quantity of emissions and what fixes the permit price. [2]

3 Exam-style questions

3.1 *(Original.)* Evaluate a maximum price of 16 on this market: identify the winners and losers, describe how the shortage of 24 might be allocated, and give one reason the policy could cause government failure. [5]

3.2 *(Original.)* A positive externality of consumption of 6 per unit is corrected with a subsidy of 6. Calculate the new equilibrium and the daily cost to the government, and explain why that cost (648) is so much larger than the welfare gain (24). [5]

3.3 *(Original.)* Define government failure and apply any two of its five causes to a minimum price of 24. [4]

3.4 *(Original.)* Explain how extending property rights can correct a negative externality, and state one limitation of the method. [3]

Solutions

2.1 Purpose: to correct market failure by moving output towards the social optimum. Methods (any five): indirect taxation; subsidies; maximum prices; minimum prices; tradeable pollution permits; extension of property rights; state provision; regulation; provision of information.

2.2 $Q_d(16) = 140 - 32 = 108$ and $Q_s(16) = 20 + 64 = 84$: shortage = 24 items/day. Consequences: rationing by queue or criteria, and black markets at prices above 16.

2.3 $Q_s(24) = 116$ and $Q_d(24) = 92$: surplus = 24 items/day. The government could buy and store the surplus (buffer stock) – at a cost.

2.4 A specific (Pigouvian) tax of 6 currency units per unit, equal to the marginal external cost; supply shifts to the social optimum with $Q = 92$.

2.5 The cap (84 permits) fixes the total quantity of emissions directly; the demand for permits (firms' savings from not abating) fixes the permit price – 28 in the model. Firms with low abatement costs sell permits to firms with high ones, so the reduction happens where it is cheapest.

3.1 Winners: consumers who still buy at 16 (they pay 4 less). Losers: producers (price down, quantity sold down to 84) and consumers who can no longer buy (demand 108 against supply 84). The shortage of 24 must be allocated by queue, criteria or ration cards – each has equity and cost problems – and a black market is likely. Government failure: administrative costs of enforcement and rationing, or the unintended black-market consequence, can outweigh the affordability gain.

3.2 Supply shifts down by 6: $Q_s = 4P + 44$, so $P_c = 16$, $Q = 108$; cost $= 6 \times 108 = 648$ currency units/day. The welfare GAIN is only the triangle $\frac{1}{2} \times 8 \times 6 = 24$ because almost all of the 648 is a TRANSFER to buyers and sellers (lower price, higher producer price) – the subsidy moves the market to the efficient quantity, but the deadweight improvement is small relative to the transfer, which is exactly the cost-effectiveness evaluation examiners want.

3.3 Government failure: intervention that produces a net welfare loss. Applied to the minimum price of 24: (i) unintended consequences – the surplus of 24 per day is produced but not demanded; (ii) excessive administrative costs – buying, storing and disposing of the surplus; (iii) information gaps – setting 24 too high misjudges the market; any two, stated as causes with the price-floor mechanism.

3.4 Property rights give the injured party (say, residents downstream) the right to clean air/water, so they can charge polluters or sue – the external cost becomes a private cost the producer must pay, shifting MPC towards MSC. Limitation: transactions and legal costs are high, and rights are hard to define or enforce when many polluters and victims are involved.

Local review guidance: price-control answers compute BOTH quantities and the gap; the transfer-versus-deadweight distinction earns the evaluation mark; causes taken from the specification list and linked to the floor mechanism. This is authored classroom guidance.